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मानक

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AMENDMENT NO. 1 JULY 1984
TO
IS:6554-1983 SPECIFICATION FOR SOLDERING FERRULES
OF STRAIGHT-THROUGH JOINTS

(First Revision)

Alterations

*(Page 1, clause 1, line 3) - Substitute '33 kV'
for '11 kV'.*

(Page 3, Explanatory Note, para 1) - Delete.

(ETDC 59)

Reprography Unit, BIS, New Delhi, India

Indian Standard
**SPECIFICATION FOR
SOLDERING FERRULES OF STRAIGHT-THROUGH JOINTS**
(First Revision)

1. Scope — Specifies material and dimensional requirements for 'weak-back' type ferrules used for soldering of straight-through joints for both copper and aluminium conductor sizes from 6 to 1 000 mm² cross section of cables rated up to and including 11 kV.

2. Terminology

2.1 Soldering Ferrule — A ferrule into which the conductor of an electric cable can be soldered for making connection between one conductor and another without employing any mechanical fastener.

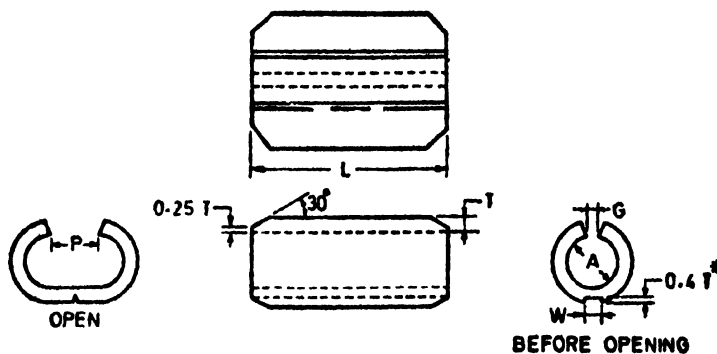
3. Material — Conforming to IS : 1897-1971 'Copper strip for electrical purpose (first revision)'.

4. Finish

4.1 After formation, the ferrules shall be tinned to give a smooth coating on both interior and exterior surfaces to ensure efficient soldering without further cleaning.

4.2 All cuts shall be properly ground so as not to leave any sharp edges.

5. Dimensions — The dimensions of ferrules (see Fig. 1) shall conform to those specified in Tables 1 and 2 for copper and aluminium conductors respectively.



*Not applicable for thickness of strips less than 2 mm

$$P = A$$

FIG. 1 DIMENSIONS OF FERRULES

6. Marking — Manufacturer's name or trade-mark and designation (see Tables 1 and 2) which includes the type and size of the conductor for which the ferrule is intended shall be legibly marked on the outside of the ferrule.

Examples :

- a) SFA-240 for soldering type weak back ferrules for aluminium conductor of 240 mm² cross section.
- b) SFC-240 for soldering type weak back ferrules for copper conductor of 240 mm² cross section.

6.1 Certification Marking — Details available with the Bureau of Indian Standards.

7. Recommended Sampling Plan — see Appendix A.

Adopted 24 February 1983

● September 1983, BIS

TABLE 1 DIMENSIONS OF FERRULES FOR COPPER CONDUCTORS
(Clauses 5 and 6)

All dimensions in millimetres.

Ferrule Designation	Dimensions				
	A	G	L	T	W
(1)	(2)	(3)	(4)	(5)	(6)
SFC-6	3.0	2	20	0.8	—
SFC-10	4.4	2	25	0.8	—
SFC-16	5.5	2	25	1.0	1.5
SFC-25	7.0	2	30	1.2	1.5
SFC-35	8.0	2	35	1.6	1.5
SFC-50	9.5	2	40	1.6	1.5
SFC-70	12.0	3	45	2.2	3
SFC-95	13.5	3	50	2.2	3
SFC-120	15.5	4	55	2.3	3
SFC-150	17.0	4	60	2.8	3
SFC-185	18.5	4	65	3.0	5
SFC-240	22.0	5	80	3.2	5
SFC-300	24.0	5	85	4.0	5
SFC-400	28.5	7	95	4.5	5
SFC-500	30.5	7	105	5.0	5
SFC-630	34.5	8	115	5.5	5
SFC-800	39.0	8	130	6.3	6
SFC-1 000	43.5	8	145	7.0	6

Tolerance on dimension 'T' shall be in accordance with col 5, Table 1 of IS : 3052-1974 Dimensions for wrought copper and copper alloys, sheet, strip and foil (for general engineering purposes) (first revision).

Tolerance on dimensions A and L shall be ± 5 percent. Dimensions G and W are approximate.

Note — Ferrules for copper conductor can be used for aluminium conductor of the same size also.

TABLE 2 DIMENSIONS OF FERRULES FOR ALUMINIUM CONDUCTORS
(Clauses 5 and 6)

All dimensions in millimetres.

Ferrule Designation	Dimensions				
	A	G	L	T	W
(1)	(2)	(3)	(4)	(5)	(6)
SFA-35	8.0	2	35	1.2	1.5
SFA-50	9.5	2	40	1.2	1.5
SFA-70	12.0	3	45	1.4	3
SFA-95	13.5	3	50	1.4	3
SFA-120	15.5	4	55	1.6	3
SFA-150	17.0	4	60	1.8	3
SFA-185	18.5	4	65	2.2	5
SFA-240	22.0	5	80	2.2	5
SFA-300	24.0	5	85	2.8	5
SFA-400	28.5	7	95	3.0	5
SFA-500	30.5	7	105	3.5	5
SFA-630	34.5	8	115	4.0	5
SFA-800	39.0	8	130	4.0	6
SFA-1 000	43.5	8	145	5.0	6

Tolerance on dimension 'T' shall be in accordance with col 5, Table 1 of IS : 3052-1974 Dimensions for wrought copper and copper alloys, sheet, strip and foil (for general engineering purposes) (first revision).

Tolerance on dimensions A and L shall be ± 5 percent. Dimensions G and W are approximate.

Note — For aluminium conductors up to 25 mm² size, the same ferrule as for copper conductor should be used.

APPENDIX A

(Clause 7)

RECOMMENDED SAMPLING PLAN FOR FERRULES

A-1. Lot — In any consignment, the ferrules of the same type manufactured by the same factory during the same period shall be grouped together to constitute a lot.

A-2. Scale of Sampling — From each lot, a certain number of ferrules shall be selected at random and checked for finish, dimensions and marking (see 4, 5 and 6). Any ferrule failing to satisfy the appropriate requirement specified in the specification shall be considered as defective.

A-2.1 The number of ferrules to be selected depends on col 1 and 2 of Table 3. The ferrules shall be selected at random.

TABLE 3 SCALE OF SAMPLING

Lot Size N	First Stage n	Second Stage n	$2n$	C_1	C_2	C_3
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Up to 300	8	8	16	0	2	2
301 to 500	13	13	26	0	3	4
501 to 1 000	20	20	40	1	4	5
1 001 and above	32	32	64	2	5	7

A-2.1.1 In order to ensure randomness for selection, random number tables shall be used (see IS : 4905-1968 Methods for random sampling).

A-3. Number of Tests and Criteria for Acceptance — Each of the ferrules selected in the first stage in accordance with col 2 of Table 3 shall be checked for marking, finish and dimensions. If the number of defectives is less than or equal to C_1 , the lot shall be considered as conforming to the requirements of the standard. If the number of defectives is equal to or greater than C_2 , the lot shall be considered as not conforming to the requirements of the standard. If the number of defectives in the first stage is between C_1 and C_2 , a further sample of same size as taken in the first stage shall be taken and tested. If the number of defectives in the two samples combined is less than C_3 , the lot shall be considered as conforming to the requirements of the test, otherwise not.

EXPLANATORY NOTE

The ferrules covered in this standard, at present, are suitable for voltages up to and including 11 kV. Ferrules for higher voltages are intended to be covered later.

Standard first published in 1972. In this revision, range is extended up to 1 000 mm² cross-sectional size. Also 'through' type ferrules are excluded because of limited use.